

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of manufacturing a semiconductor device ~~comprising a wiring comprising at least a laminate of a first conductive film with a property as a barrier and a second conductive film containing copper as its main component,~~ comprising the steps of:

forming a wiring comprising at least a laminate of a first conductive film with a property as a barrier and a second conductive film containing copper as its main component, said step of forming a wiring including the steps of:

- (i) forming the first conductive film over an insulating surface;
- (ii) making etching the first conductive film ~~into a desired shape with etching;~~
- (iii) forming the second conductive film on the first conductive film through an opening portion of a mask; and
- (iv) reducing a width of the second conductive film with dry etching.

2. (Currently Amended) A method of manufacturing a semiconductor device ~~comprising a first wiring comprising at least a laminate of a first conductive film with a property as a barrier and a second conductive film containing copper as its main component,~~ comprising the steps of:

forming a semiconductor layer over an insulating surface;
forming a first insulating film over the semiconductor layer;
forming a first wiring comprising at least a laminate of a first conductive film with a property as a barrier and a second conductive film containing copper as its main component, said step of forming a first wiring including the steps of:

- (i) forming the first conductive film over the first insulating film;
 - (ii) ~~making etching~~ the first conductive film ~~into a desired shape with etching~~;
 - (iii) forming the second conductive film on the first conductive film through an opening ~~portion~~ of a mask;
 - (iv) reducing a width of the second conductive film with dry etching;
- doping an impurity element into the semiconductor layer with the first wiring as a mask to form an impurity region;
- forming a second insulating film over the first wiring;
- forming a contact hole to reach the impurity region in the second insulating film;
- and
- forming a second wiring electrically connected to the impurity region over the second insulating film.

3. (Currently Amended) A method of manufacturing a semiconductor device according to claim 2 further comprising the steps of:

- forming a third conductive film with a property as a barrier over the second insulating film;
- ~~making etching~~ the third conductive film ~~into a desired shape with etching~~;
- forming a fourth conductive film containing copper as its main component on the third conductive film through an opening ~~portion~~ of a mask; and
- reducing a width of the fourth conductive film with dry etching to form the second wiring.

4. (Currently Amended) A method of manufacturing a semiconductor device ~~comprising a wiring comprising at least a laminate of a first conductive film with a property as a barrier and a second conductive film containing copper as its main component~~, comprising the steps of:

forming a semiconductor layer comprising an impurity region;
forming a gate electrode over the semiconductor layer through a first insulating film;

forming a second insulating film over the gate electrode;

forming a contact hole to reach the impurity region in the second insulating film;

forming a wiring comprising at least a laminate of a first conductive film with a property as a barrier and a second conductive film containing copper as its main component, said step of forming a wiring including the steps of:

(i) patterning the first conductive film formed over the second insulating film;

(ii) forming the second conductive film on the first conductive film through an opening portion of a mask; and

(iii) reducing a width of the second conductive film with dry etching to form the wiring electrically connected to the impurity region on the second insulating film.

5. (Original) A method according to claim 1, wherein the first conductive film comprises TiN as its main component.

6. (Original) A method according to claim 2, wherein the first conductive film comprises TiN as its main component.

7. (Original) A method according to claim 4, wherein the first conductive film comprises TiN as its main component.

8. (Original) A method according to claim 1, wherein the first conductive film comprises a laminate of a film containing Ti as its main component and a film comprising one of TiN, TaN, WN, TiC, TaC, and silicon.

9. (Original) A method according to claim 2, wherein the first conductive film comprises a laminate of a film containing Ti as its main component and a film comprising one of TiN, TaN, WN, TiC, TaC, and silicon.

10. (Original) A method according to claim 4, wherein the first conductive film comprises a laminate of a film containing Ti as its main component and a film comprising one of TiN, TaN, WN, TiC, TaC, and silicon.

11. (Original) A method according to claim 1, wherein the first conductive film comprises a laminate of a film containing Ti as its main component and a film comprising one of TiN, TaN, WN, TiC, TaC, and silicon formed on the film containing Ti as its main component.

12. (Original) A method according to claim 2, wherein the first conductive film comprises a laminate of a film containing Ti as its main component and a film comprising one of TiN, TaN, WN, TiC, TaC, and silicon formed on the film containing Ti as its main component.

13. (Original) A method according to claim 4, wherein the first conductive film comprises a laminate of a film containing Ti as its main component and a film comprising one of TiN, TaN, WN, TiC, TaC, and silicon formed on the film containing Ti as its main component.

14. (Original) A method of manufacturing a semiconductor device according to claim 1, wherein an insulating film with a property as a barrier comprising at least one of silicon nitride, silicon oxynitride, aluminum nitride, and aluminum oxynitride is formed with sputtering to cover the second conductive film.

15. (Original) A method of manufacturing a semiconductor device according to claim 2, wherein an insulating film with a property as a barrier comprising at least one of silicon nitride, silicon oxynitride, aluminum nitride, and aluminum oxynitride is formed with sputtering to cover the second conductive film.

16. (Original) A method of manufacturing a semiconductor device according to claim 4, wherein an insulating film with a property as a barrier comprising at least one of silicon nitride, silicon oxynitride, aluminum nitride, and aluminum oxynitride is formed with sputtering to cover the second conductive film.

17. (Original) A method of manufacturing a semiconductor device according to claim 3, wherein an insulating film with a property as a barrier comprising at least one of silicon nitride, silicon oxynitride, aluminum nitride, and aluminum oxynitride is formed with sputtering to cover the fourth conductive film.

18. (Currently Amended) A method of manufacturing a semiconductor device ~~comprising a first wiring comprising at least a laminate of a first conductive film with a property as a barrier and a second conductive film containing copper as its main component,~~ comprising the steps of:

forming a semiconductor layer over an insulating surface;

forming a first insulating film over the semiconductor layer;

forming a first wiring comprising at least a laminate of a first conductive film with a property as a barrier and a second conductive film containing copper as its main component, said step of forming a first wiring including the steps of:

(i) forming the first conductive film over the first insulating film;

(ii) making etching the first conductive film ~~into a desired shape with etching~~;

(iii) forming the second conductive film on the first conductive film through

an opening ~~portion~~ of a mask;

(iv) reducing a width of the second conductive film with dry etching;

doping an impurity element into the semiconductor layer with the first wiring as a mask to form an impurity region;

forming a second insulating film over the first wiring;

forming a third insulating film over the second insulating film;

forming a contact hole to reach the impurity region in the second insulating film and the third insulating film; and

forming a second wiring electrically connected to the impurity region over the third insulating film.

19. (Currently Amended) A method of manufacturing a semiconductor device according to claim 18 further comprising the steps of:

forming a third conductive film with a property as a barrier over the third insulating film;

making etching the third conductive film ~~into a desired shape with etching~~;

forming a fourth conductive film containing copper as its main component on the third conductive film through an opening ~~portion~~ of a mask; and

reducing a width of the fourth conductive film with dry etching to form the second wiring.

20. (Currently Amended) A method of manufacturing a semiconductor device ~~comprising a first wiring comprising at least a laminate of a first conductive film with a property as a barrier and a second conductive film containing copper as its main component~~, comprising the steps of:

forming a semiconductor layer over an insulating surface;

forming a first insulating film over the semiconductor layer;

forming a first wiring comprising at least a laminate of a first conductive film with

a property as a barrier and a second conductive film containing copper as its main component, said step of forming a first wiring including the steps of:

- (i) forming the first conductive film over the first insulating film;
 - (ii) making etching the first conductive film ~~into a desired shape with etching~~;
 - (iii) forming the second conductive film on the first conductive film through an opening ~~portion~~ of a mask;
 - (iv) reducing a width of the second conductive film with dry etching;
- doping an impurity element into the semiconductor layer with the first wiring as a mask to form an impurity region;
- forming a second insulating film over the first wiring;
- forming a third insulating film over the second insulating film;
- forming a fourth insulating film over the third insulating film;
- forming a contact hole to reach the impurity region in the second insulating film and the third insulating film and the fourth insulating film; and
- forming a second wiring electrically connected to the impurity region over the fourth insulating film.

21. (Currently Amended) A method of manufacturing a semiconductor device according to claim 20 further comprising the steps of:

- forming a third conductive film with a property as a barrier over the fourth insulating film;
- ~~making etching~~ the third conductive film ~~into a desired shape with etching~~;
- forming a fourth conductive film containing copper as its main component on the third conductive film through an opening ~~portion~~ of a mask; and
- reducing a width of the fourth conductive film with dry etching to form the second wiring.

22. (Currently Amended) A method of manufacturing a semiconductor device comprising ~~a first wiring comprising at least a laminate of a first conductive film with a property as a barrier and a second conductive film containing copper as its main component~~, comprising the steps of:

forming a semiconductor layer over an insulating surface;

forming a first insulating film over the semiconductor layer;

forming a first wiring comprising at least a laminate of a first conductive film with a property as a barrier and a second conductive film containing copper as its main component, said step of forming a first wiring including the steps of:

(i) forming the first conductive film over the first insulating film;

(ii) making etching the first conductive film ~~into a desired shape with etching~~;

(iii) forming the second conductive film on the first conductive film through an opening ~~portion~~ of a mask;

(iv) reducing a width of the second conductive film with dry etching;

doping an impurity element into the semiconductor layer with the first wiring as a mask to form an impurity region;

forming a second insulating film over the first wiring;

forming a contact hole to reach the impurity region in the second insulating film;

and

forming a second wiring electrically connected to the impurity region over the second insulating film,

wherein the first conductive film has a tapered shape.

23. (Currently Amended) A method of manufacturing a semiconductor device according to claim 22 further comprising the steps of:

forming a third conductive film with a property as a barrier over the second insulating film;

~~making etching~~ the third conductive film ~~into a desired shape with etching~~;
forming a fourth conductive film containing copper as its main component on the third conductive film through an opening ~~portion~~ of a mask; and
reducing a width of the fourth conductive film with dry etching to form the second wiring.

24. (Currently Amended) A method of manufacturing a semiconductor device comprising ~~a first wiring comprising at least a laminate of a first conductive film with a property as a barrier and a second conductive film containing copper as its main component~~, comprising the steps of:

forming a semiconductor layer over an insulating surface;

forming a first insulating film over the semiconductor layer;

forming a first wiring comprising at least a laminate of a first conductive film with a property as a barrier and a second conductive film containing copper as its main component, said step of forming a first wiring including the steps of:

(i) forming the first conductive film over the first insulating film;

(ii) ~~making etching~~ the first conductive film ~~into a desired shape with etching~~;

(iii) forming the second conductive film on the first conductive film through an opening ~~portion~~ of a mask;

(iv) reducing a width of the second conductive film with dry etching;

doping an impurity element into the semiconductor layer with the first wiring as a mask to form an impurity region;

forming a second insulating film over the first wiring;

forming a contact hole to reach the impurity region in the second insulating film;

and

forming a second wiring electrically connected to the impurity region over the second insulating film,

wherein the second conductive film has a tapered shape.

25. (Currently Amended) A method of manufacturing a semiconductor device according to claim 24 further comprising the steps of:

forming a third conductive film with a property as a barrier over the second insulating film;

~~making etching the third conductive film into a desired shape with etching;~~

forming a fourth conductive film containing copper as its main component on the third conductive film through an opening ~~portion~~ of a mask; and

reducing a width of the fourth conductive film with dry etching to form the second wiring.

26. (Currently Amended) A method of manufacturing a semiconductor device ~~comprising a first wiring comprising at least a laminate of a first conductive film with a property as a barrier and a second conductive film containing copper as its main component,~~ comprising the steps of:

forming a semiconductor layer over an insulating surface;

forming a first insulating film over the semiconductor layer;

forming a first wiring comprising at least a laminate of a first conductive film with a property as a barrier and a second conductive film containing copper as its main component, said step of forming a first wiring including the steps of:

(i) forming the first conductive film over the first insulating film;

(ii) ~~making etching the first conductive film into a desired shape with etching;~~

(iii) forming the second conductive film on the first conductive film through an opening ~~portion~~ of a mask;

(iv) reducing a width of the second conductive film with dry etching;

doping an impurity element into the semiconductor layer with the first wiring as a

mask to form an impurity region;

forming a second insulating film over the first wiring;

forming a contact hole to reach the impurity region in the second insulating film;

and

forming a second wiring electrically connected to the impurity region over the second insulating film,

wherein the first conductive film has a tapered shape, and

wherein the second conductive film has a tapered shape.

27. (Currently Amended) A method of manufacturing a semiconductor device according to claim 26 further comprising the steps of:

forming a third conductive film with a property as a barrier over the second insulating film;

~~making etching~~ the third conductive film ~~into a desired shape with etching~~;

forming a fourth conductive film containing copper as its main component on the third conductive film through an opening ~~portion~~ of a mask; and

reducing a width of the fourth conductive film with dry etching to form the second wiring.

28. (Previously Presented) A method according to claim 18, wherein the first conductive film comprises TiN as its main component.

29. (Previously Presented) A method according to claim 20, wherein the first conductive film comprises TiN as its main component.

30. (Previously Presented) A method according to claim 22, wherein the first conductive film comprises TiN as its main component.

31. (Previously Presented) A method according to claim 24, wherein the first conductive film comprises TiN as its main component.

32. (Previously Presented) A method according to claim 26, wherein the first conductive film comprises TiN as its main component.

33. (Previously Presented) A method according to claim 18, wherein the first conductive film comprises a laminate of a film containing Ti as its main component and a film comprising one of TiN, TaN, WN, TiC, TaC, and silicon.

34. (Previously Presented) A method according to claim 20, wherein the first conductive film comprises a laminate of a film containing Ti as its main component and a film comprising one of TiN, TaN, WN, TiC, TaC, and silicon.

35. (Previously Presented) A method according to claim 22, wherein the first conductive film comprises a laminate of a film containing Ti as its main component and a film comprising one of TiN, TaN, WN, TiC, TaC, and silicon.

36. (Previously Presented) A method according to claim 24, wherein the first conductive film comprises a laminate of a film containing Ti as its main component and a film comprising one of TiN, TaN, WN, TiC, TaC, and silicon.

37. (Previously Presented) A method according to claim 26, wherein the first conductive film comprises a laminate of a film containing Ti as its main component and a film comprising one of TiN, TaN, WN, TiC, TaC, and silicon.

38. (Previously Presented) A method according to claim 18, wherein the first conductive film comprises a laminate of a film containing Ti as its main component and

a film comprising one of TiN, TaN, WN, TiC, TaC, and silicon formed on the film containing Ti as its main component.

39. (Previously Presented) A method according to claim 20, wherein the first conductive film comprises a laminate of a film containing Ti as its main component and a film comprising one of TiN, TaN, WN, TiC, TaC, and silicon formed on the film containing Ti as its main component.

40. (Previously Presented) A method according to claim 22, wherein the first conductive film comprises a laminate of a film containing Ti as its main component and a film comprising one of TiN, TaN, WN, TiC, TaC, and silicon formed on the film containing Ti as its main component.

41. (Previously Presented) A method according to claim 24, wherein the first conductive film comprises a laminate of a film containing Ti as its main component and a film comprising one of TiN, TaN, WN, TiC, TaC, and silicon formed on the film containing Ti as its main component.

42. (Previously Presented) A method according to claim 26, wherein the first conductive film comprises a laminate of a film containing Ti as its main component and a film comprising one of TiN, TaN, WN, TiC, TaC, and silicon formed on the film containing Ti as its main component.

43. (Previously Presented) A method of manufacturing a semiconductor device according to claim 18, wherein an insulating film with a property as a barrier comprising at least one of silicon nitride, silicon oxynitride, aluminum nitride, and aluminum oxynitride is formed with sputtering to cover the second conductive film.

44. (Previously Presented) A method of manufacturing a semiconductor device according to claim 19, wherein an insulating film with a property as a barrier comprising at least one of silicon nitride, silicon oxynitride, aluminum nitride, and aluminum oxynitride is formed with sputtering to cover the fourth conductive film.

45. (Previously Presented) A method of manufacturing a semiconductor device according to claim 22, wherein an insulating film with a property as a barrier comprising at least one of silicon nitride, silicon oxynitride, aluminum nitride, and aluminum oxynitride is formed with sputtering to cover the second conductive film.

46. (Previously Presented) A method of manufacturing a semiconductor device according to claim 23, wherein an insulating film with a property as a barrier comprising at least one of silicon nitride, silicon oxynitride, aluminum nitride, and aluminum oxynitride is formed with sputtering to cover the fourth conductive film.

47. (Previously Presented) A method of manufacturing a semiconductor device according to claim 24, wherein an insulating film with a property as a barrier comprising at least one of silicon nitride, silicon oxynitride, aluminum nitride, and aluminum oxynitride is formed with sputtering to cover the second conductive film.

48. (Previously Presented) A method of manufacturing a semiconductor device according to claim 25, wherein an insulating film with a property as a barrier comprising at least one of silicon nitride, silicon oxynitride, aluminum nitride, and aluminum oxynitride is formed with sputtering to cover the fourth conductive film.

49. (Previously Presented) A method of manufacturing a semiconductor device according to claim 26, wherein an insulating film with a property as a barrier comprising at least one of silicon nitride, silicon oxynitride, aluminum nitride, and aluminum

oxynitride is formed with sputtering to cover the second conductive film.

50. (Previously Presented) A method of manufacturing a semiconductor device according to claim 27, wherein an insulating film with a property as a barrier comprising at least one of silicon nitride, silicon oxynitride, aluminum nitride, and aluminum oxynitride is formed with sputtering to cover the fourth conductive film.